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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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STEIN, MCEWEN & BUI, LLP
1400 EYE STREET, NW
SUITE 300
WASHINGTON, DC 20005

EXAMINER

CHOW, LIXI

ART UNIT PAPER NUMBER

2627

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/806,320

Applicant(s)

AHN ET AL.

Examiner

Lixi Chow

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-29 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 1-29 are pending in this application.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 recites in part, "...the information data is recorded on the optical recording medium as a wobble signal". This alone is understandable; however, since claim 19 is depend from claim 18, which recite in part, "...the recording waveform generating unit generates information data representing a characteristic of the second multi-pulse", the language of claim 19 is being construed as "the information data generated by the recording waveform generating unit is recorded onto the optical recording medium as a wobble signal". Accordingly, it is unclear as to whether the information data is being generated or the information data is pre-recorded on the recording medium.

Given with the support from paragraph 0040 of the instant application, it is reasonably suggested the language of claim 19 should be rewritten to read as follow:

-- The apparatus of claim 18, wherein the information data recorded on the optical recording medium as a wobble signal is being used by the recording waveform generating unit to further generate the information data representing a characteristic of the second multi-pulse. --

For the purpose of this Office Action, the Examiner has taken claim 19 to mean the above suggested language of the claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5, 7-12, 14-16, 18, 20, 21 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dekker (US 6,600,709) in view of Ichihara (US 6,396,792).

Regarding claim 1:

Dekker discloses an apparatus for forming a first state and a second state alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level, respectively (see Figs. 1A-1B and 3, the recording signal 10 shown in Figs. 1A or 1B has first state having first level indicated by reference #11, and second state having second level indicated by reference #12), in an optical recording apparatus, comprising:

a recording waveform generating unit generating a recording waveform which includes a first multi-pulse having a plurality of first pulses corresponding to the first level of the input data and a second multi-pulse having a plurality of second pulses corresponding to the second level of the input data (see Figs 1A-1B, the first multi-pulses corresponds to reference #13, and second multi-pulses corresponds to reference #14).

Dekker fail to disclose a leading one of the second pulses is set to a low level and a power level of a pulse between an end of the second multi-pulse and a first one of the first pulses of the first multi-pulse is set to a high level. However, Ichihara teaches an apparatus for forming a first state and a second state on an optical recording medium in response to the input data,

wherein the power level for the second pulses (erase pattern) are not limited to those shown in the figure, i.e. Fig. 1B(see col. 6, lines 35-44). In addition, Ichihara suggests a plurality of power levels lower than the recording level (Pa) are acceptable for setting the erase power level (see col. 6, lines 58-61). Hence, Examiner maintains that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation (see MPEP § 2144.05(II)(A)).

Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the apparatus of Dekker, such that the power level of the leading one of the second pulses and the pulse between an end of the second multi-pulse and a first one of the first pulses of the first multi-pulse is set in various way as suggested by Ichihara. In particular, it would be obvious for a person with an ordinary skill to have modified the power level of a leading one of the second pulses to a low level and a power level of a pulse between an end of the second multi-pulse and a first one of the first pulses of the first multi-pulse to a high level. One would have been motivated to do this, because optimization of erase power level are different among different type of discs and conditions (see Ichihara, col. 11, lines 16-25; one would have to consider the material of the recording layer and the optical property of the laser in order to determine the optimum erase power level); therefore, it would be necessary to provide second multi-pulse in various combination of ranges from routine experimentation, such that optimum power level of the second multi-pulse can be determined in order to ensure the entire area in the width direction of the recording track uniformly passes the temperature zone that promotes the generation of crystal nuclei (see col. 7, lines 1-5).

Regarding claims 2-5, 7, 8, 10-12, 14-16, 18, 20 and 21:

Claims 2-5, 7, 8, 10-12, 14-16, 18, 20 and 21 are the original claims. Hence, Dekker discloses all the elements that are recited in claims 2-5, 7, 8, 10-12, 14-16, 18, 20 and 21 for the reasons set forth in the previous Office Action.

Regarding claim 9:

Claim 9 is only amended for the purpose of editorial revision, and it does not change the scope of the claim. Therefore, claim 9 is rejected under Dekker for the same reason set forth in the last Office Action.

Regarding claim 25:

Claim 25 recites similar limitations as claim 1, hence, claim 25 is rejected under the same reasons set forth in claim 1. In addition to claim 1, Dekker also discloses a cooling pulse concatenating the first and second multi-pulses (see Figs. 1A or 1B for example, the off pulse between the first multi-pulse reference #13 and second multi-pulse reference #14 is a cooling pulse, which is connecting the first and second multi-pulses).

Regarding claims 26-29:

Claims 26-29 recite similar limitations as claims 1 and/or 25. Hence, the description of the similar limitations met by Dekker is omitted here. In addition to claim 1, Dekker also discloses the leading one of the second pulses is set to be a low level of the multi-pulse (see Fig. 1A).

Dekker fail to disclose a leading one of the second pulses is set to a low level and a power level of a pulse between an end of the second multi-pulse and a first one of the first pulses of the first multi-pulse is set to the low level, and/or a leading one of the second pulses is set to a high level and a power level of a pulse between an end of the second multi-pulse and a first one

of the first pulses of the first multi-pulse is set to the high level. However, Ichihara teaches an apparatus for forming a first state and a second state on an optical recording medium in response to the input data, wherein the power level for the second pulses (erase pattern) are not limited to those shown in the figure, i.e. Fig. 1B(see col. 6, lines 35-44). In addition, Ichihara suggests a plurality of power levels lower than the recording level (P_a) are acceptable for setting the erase power level (see col. 6, lines 58-61). Hence, Examiner maintains that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation (see MPEP § 2144.05(II)(A)).

The motivational statement for claims 26-29 is the same as the one set forth in claim 1. Hence, refer to claim 1 for the statement indicating the obviousness of modifying the apparatus of Dekker in view of Ichihara's teaching.

6. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichihara.

Regarding claim 1:

Ichihara discloses an apparatus for forming a first state and a second state alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level, respectively (see Fig. 1A-1B and Col. 2, lines 30-44), in an optical recording apparatus, comprising:

a recording waveform generating unit generating a recording waveform which includes a first multi-pulse having a plurality of first pulses corresponding to the first level of the input data (see Figs. 1A-1B, and 1D, a mark is formed by plurality of pulses at first level) and a second multi-pulse having a plurality of second pulses corresponding to the second level of the input

data (see Figs. 1A-1B, and 1D, a space is formed by plurality of pulses at second level, lower than the first level).

Ichihara does not specifically show the leading one of the second pulses is set to a low level and a power level of a pulse between an end of the second multi-pulse and a first one of the first pulses of the first multi-pulse is set to a high level. However, Ichihara teaches an apparatus for forming a first state and a second state on an optical recording medium in response to the input data, wherein the power level for the second pulses (erase pattern) are not limited to those shown in the figure, i.e. Fig. 1B(see col. 6, lines 35-44). In addition, Ichihara suggests a plurality of power levels lower than the recording level (P_a) are acceptable for setting the erase power level (see col. 6, lines 58-61). Hence, Examiner maintains that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation (see MPEP § 2144.05(II)(A)).

Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have set the power level of the leading one of the second pulses and the pulse between an end of the second multi-pulse and a first one of the first pulses of the first multi-pulse in various way as suggested by Ichihara. In particular, it would be obvious for a person with an ordinary skill to have modified the power level of a leading one of the second pulses to a low level and a power level of a pulse between an end of the second multi-pulse and a first one of the first pulses of the first multi-pulse to a high level. One would have been motivated to do this, because optimization of erase power level are different among different type of discs and conditions (see Ichihara, col. 11, lines 16-25; one would have to consider the material of the recording layer and the optical property of the laser in order to determine the

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optimum erase power level); therefore, it would be necessary to provide second multi-pulse in various combination of ranges from routine experimentation, such that optimum power level of the second multi-pulse can be determined in order to ensure the entire area in the width direction of the recording track uniformly passes the temperature zone that promotes the generation of crystal nuclei (see col. 7, lines 1-5).

Regarding claim 6:

Claim 6 is the original claim. Hence, Ichihara discloses the element that is recited in claim 6 for the reasons set forth in the previous Office Action.

7. Claims 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dekker in view of Ichihara as applied to claims 1, 11 and 16 above, and further in view of Ushiyama et al. (US 2002/0176338; hereafter Ushiyama).

Regarding claim 13:

Dekker and Ichihara do not show the first starting pulses varying in accordance with the second starting pulse and second ending pulse of the second pulses. However, Ushiyama disclose an apparatus for generating a recording waveform, wherein the first pulse of the first pulses (recording pattern) is adjusted according to the second starting pulse and the second ending pulse of the second pulses (space pattern)(see Ushiyama, paragraph [0049]; the optimized pulse value changes based on the property of the space portion (the space portion includes a starting pulse and the ending pulse) located in the front/rear of the recording pattern).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the apparatus of Dekker and Ichihara, so that the first pulse of the first pulses varying in accordance with the property of the second starting pulse and the second

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ending pulse as taught by Ushiyama. One of ordinary skill in the art would have been motivated to do this, because the optimum pulse value changes according to the property of the space portion located in front of the recording pattern (see Ushiyama, paragraph [0049]). Essentially, the property of the last one of the pulses of the pattern is crucial in determining the optimum pulse value of the first pulse of the recording pattern.

Regarding claim 17:

Claim 17 is rejected under the same reasons set forth in the previous Office Action.

8. Claims 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dekker in view of Ichihara as applied to claims 1 and 18 above, and further in view of Iida et al. (US Pub. No. 2002/0027848; hereafter Iida).

Regarding claim 19:

Dekker and Ichihara do not, but Iida discloses the information data is recorded on the optical recording medium as a wobble signal (see paragraph [0166]; the recording laser power information is encoded in the wobble information that is recorded on the recording medium).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the apparatus of Dekker, wherein the information data representing the characteristic of the second multi-pulse is recorded on the recording medium as wobble signal as taught by Iida. One would have been motivated to do this, because the compatibility with know CD format discs can be maintained when the physical characteristic information such as the recording power information is recorded as wobbling signal in the groove (see paragraph [0451]).

Regarding claim 22:

Dekker and Ichihara do not, but Iida discloses the optical recording medium comprises a lead-in area, and the information data is recorded in the lead-in area of the optical recording medium (see paragraph [0316]).

It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to record the generated information data of Dekker in the lead-in area of the optical recording medium as suggested by Iida, so that information data representing the characteristic of the second multi-pulse can be read from the lead-in area in order to set the recording parameter.

9. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dekker in view of Ichihara as applied to claims 1, 18 and 21 above, and further in view of Ando (US 6,088,315).

Regarding claims 23 and 24:

Dekker and Ichihara fail to show a servo unit receiving the information data read from the optical recording medium; however, Ando discloses an optical recording apparatus, comprising a servo unit receiving the information data read from the optical recording medium and rotating the optical recording medium at a speed corresponding to the received information data (see col. 6, lines 14-20); and/or a servo unit rotating the optical recording medium in a first speed (the constant linear velocity corresponds to the first speed), receiving the information data from the optical recording medium, and rotating the optical recording medium at a second speed (the constant angular velocity corresponds to the second speed) according to the received information data (see col. 6, lines 14-34).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the servo unit of Dekker such that it receives information data to control the rotational speed of the recording medium as taught by Ando. One of ordinary skill in the art would have been motivated to do this, because rotational control of the servo can be accurately carried out according to the type of the disc being read.

Response to Arguments

10. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lixi Chow whose telephone number is 571-272-7571. The examiner can normally be reached on Mon-Fri, 8:30am to 6:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. L. Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LC 3/29/06


ANDREA WELLINGTON
SUPERVISORY PATENT EXAMINER